

REMARKS

Applicants respectfully request reconsideration of the instant application in view of the foregoing amendments and the following remarks. Claims 1-9 are currently pending in the application. Applicants have added claims 10-17. Support for these new claims can be found throughout the specification. For example, support for claims 10-13 can be found in the first paragraph of page 9 of the specification, support for claims 14-15 can be found in Fig. 3 and the first paragraph of page 13 of the specification, and support for claims 16-17 can be found in the last paragraph of page 13 of the specification. Applicants submit that no new matter has been added by way of the Amendment.

Applicants thank the Examiner for the indication that claim 9 is in condition for allowance. Applicants note that on page 1 of the Office Action that Examiner has indicated that claim 9 has been objected to. However, Applicants also note that the Examiner has not specified any objections to claim 9 in the body of the Office Action. The Examiner is invited to contact the undersigned to clarify an objection to claim 9, if necessary.

Claim Rejections - 35 U.S.C. § 102

The Office Action states that claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirai et al., US Patent No. 5,905,585, hereinafter referred to as "Shirai" (See, Office Action, page 2, ¶ 2). Applicants believe the statement that claim 9 is rejected may be a typographical error and clarification of the rejection if claim 9 is rejected. However, Applicants submit that the pending claims 1-8 are not anticipated by the cited reference, Shirai.

I. Independent Claim 1 is Patentably Distinct from the Cited Reference

Applicants submit that Shirai does not disclose at least a media independent interface that generates signals in a predetermined plurality of frequencies outside frequencies used for data communication.

Independent claim 1 recites *inter alia*:

A media converter . . . comprising . . .

a media independent interface section which connects the first transmission reception processing section with the second transmission - reception processing section and performs data interfacing and also generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency outside the communication frequency bands, wherein

the transmission and reception of local information is performed with media converters that are matched via the optical network.

Applicants respectfully submit the cited reference does not teach, disclose or suggest a media converter with a media independent interface section that “generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency outside the communication frequency bands” as recited in independent claim 1. Therefore, Applicants submit independent claim 1 is patentably distinct from Shirai for at least this reason. Applicants also submit that independent claim 2 and claims 3 and 4, which depend thereon, are also patentably distinct from Shirai for at least similar reasons.

The Examiner asserts that Shirai teaches an invention with “a media independent interface section . . . which . . . generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency

outside the communication frequency bands” relying on Shirai, Fig. 2, col. 2, line 50 - col. 3, line 18. (See, Office Action, pages 2-3).

Applicants submit that Shirai’s system does not anticipate the claimed invention. Instead, Shirai's system is directed to transmitting different data for detecting line-disconnection troubles generated by opposite stations, the data for detecting line-disconnection troubles are placed in bytes of an overhead channel that have not been used or that have not been defined and are transmitted from one of the stations. The data for detecting line-disconnection troubles is extracted from an overhead channel at another station. Thus, the extracted data for detecting line-disconnection troubles in Shirai's system is compared with data for detecting line-disconnection troubles having been transmitted by the other station itself. The system determines whether a line-disconnection trouble occurs based on the comparison result. (See, e.g., Shirai, Abstract, and cols. 5 and 10, lines 5-47).

Accordingly, Shirai simply embeds the data for detecting line-disconnection troubles in the overhead channel. As such, Applicants submit that Shirai does not disclose the media independent interface section “generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency outside the communication frequency bands.” as recited in independent claim 1. Accordingly, for at least this reason independent claim 1 is clearly distinct from Shirai's disclosed system, which does not implement signal transmission outside the data communication frequency bands.

Furthermore, the Examiner also asserts that "inherently, detecting errors on Shirai’s patent mean detects and error signal in a frequency outside the communication frequency bands." (See, Office Action, page 3). Applicants disagree and submit that since the invention of Shirai is based on SDH or SONET architecture (See, e.g., Shirai, col. 9, lines 36-51), overhead data is appended to a payload, and then the payload with appended overhead are subjected to time-division

multiplexing and transmitted to a transmission path. Therefore, Shirai's system transmits using the same frequency, both:

1. the overhead in which the data for detecting line-disconnection troubles is placed; and
2. the payload in which transmission/reception data is placed.

Moreover, Shirai's system simply detects whether a line-disconnection trouble occurs. That is, Shirai can only transmit extremely limited pieces of information per unit time from a transmitting side to a receiving side. In contrast, the invention recited in claim 1 "generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency outside the communication frequency bands." Therefore, for example, the invention recited in claim 1 can transmit local information within a simple structure even if a large amount of local information is transmitted per unit time.

In summary, Applicants submit that because the cited reference does not disclose or suggest at least a media converter with a media independent interface section that "generates error signals in a predetermined plurality of frequencies outside frequency bands used for data communication or detects an error signal in a frequency outside the communication frequency bands" independent claims 1 is patentably distinct from the Shirai patent.

Applicants submit that independent claim 2, directed to a media converter with a media independent interface section that "transmits signals in a predetermined plurality of frequencies outside frequency bands used for data signal communication or detects signals in a frequency outside the communication frequency bands based on an instruction from the control section" is also patentably distinct from Shirai for reasons similar to those discussed above. Moreover, Applicants submit that the 100-BASE-TX local area network and a 100 BASE-FX local area network as recited in independent claim 2 are not anticipated by Shirai's system that

is based on the SDH or SONET architecture. Further, Applicants submit that claims 3 and 4, which depend independent claim 2 are patentably distinct from Shirai for at least similar reasons.

II. Independent Claim 5 is Patentably Distinct from the Cited Reference

Applicants submit that Shirai does not disclose at least a control section that transmits local information using a combination of transmission error signals and idle signals by controlling the transmission timings of the transmission error signals and idle signals.

Independent claim 5 recites *inter alia*,:

A media converter . . . comprising . . .

a control section which controls transmission timings of transmission error signals and idle signals transmitted from the media independent interface section and causes these signals to be transmitted in combinations, wherein

the transmission and reception of local information is performed with media converters that are matched via the optical network.

Applicants respectfully submit the cited reference does not teach, disclose or suggest a media converter with “a control section which controls transmission timings of transmission error signals and idle signals...and causes these signals to be transmitted in combinations” as recited in independent claim 5. Therefore, Applicants submit that independent claim 5 is patentably distinct from Shirai for at least this reason. Applicants also submit that independent claim 6 and claim 7, which is dependent therefrom, are also patentably distinct from Shirai for at least similar reasons.

The Examiner asserts that Shirai teaches a media converter with “a control section which controls transmission timings of transmission error signals and idle signals transmitted from the media independent interface section and causes these signals to be transmitted in

combinations” relying on Shirai Fig. 2, col. 6, lines 1-67. (See, Office Action, pages 5-6).

Applicants disagree and submit that Shirai’s system does not disclose at least a control section as in claim 5 that transmits local information using combinations of transmission error signals and idle signals by controlling the transmission timings of the transmission error signals and the idle signals.

Advantageously, with the claimed elements, it is possible to communicate the local information between media converters, without providing special circuitry such as modulators. In addition, since IDLE signals used in normal communication can be used as carriers for the local information, a restriction is not necessarily imposed on the frequency band for transmitting the local information. Therefore, it is possible to resolve the problems of band restrictions on the transmission paths and electrical circuits. Moreover, since it is possible to perform transmission with signals sufficiently slower than the carrier frequency, the number of pieces of information per unit time to be transmitted can be increased and the determination at the receiving side can also be simplified.

Furthermore, the Examiner alleges the claimed elements are disclosed as determining units 1a shown in Fig. 2 and lines 1-67 of column 5 of Shirai. (See, Office Action, page 6). However, as described above, Shirai simply embeds the data for detecting line-disconnection troubles in the overhead channel, to allow the receiving side to detect a line-disconnection trouble. Therefore, Applicants submit that the claimed elements recited in claim 5 are patentably distinct from Shirai's disclosed system, which does not disclose transmitting local information using combinations of the idle signals and the transmission error signals.

In addition, as described above, since Shirai merely transmits the presence or absence of a line-disconnection trouble, the number of pieces of information that can be transmitted per unit time is extremely restricted as compared with the invention recited in claim 5.

Applicants submit that independent claim 6, directed to a media converter with “a control section which controls the media independent interface section, wherein as a result of the control section controlling transmission timings of transmission error signals and idle signals transmitted from the media independent interface section and causing these signals to be transmitted in combinations, the transmission and reception of local information is performed with media converters that are matched via the 100 BASE-FX local area network” is also patentably distinct from Shirai for reasons similar to those discussed above. Moreover, Applicants submit that because the structure of claim 6 is based on a 100 BASE-TX local area network and a 100 BASE-FX local area network, claim 6 is not anticipated by Shirai's SDH or SONET architecture. Further, Applicants submit that claim 7, which depends on independent claim 6 is patentably distinct from Shirai for at least similar reasons.

III. Independent Claim 8 is Patentably Distinct from the Cited Reference

Applicants submit that Shirai does not disclose at least an integrated local transmission function where the transmitting side alternately transmits VALID symbols and INVALID symbols, and a receiving side alternately generates the normal data reception state and the error reception state, thereby realizing the transmission of the local information based on the changes in the states.

Independent claim 8 recites *inter alia*:

A media converter provided with an integrated local information transmission function, wherein, on the transmitting side, VALID symbols and INVALID symbols are transmitted alternately and, on the reception side, a normal data reception state and an error reception state are alternately generated and the transmission of local information is performed based on the changes in the states.

Applicants respectfully submit that Shirai does not teach, disclose or suggest a media converter with “an integrated local information transmission function, wherein, on the transmitting side, VALID symbols and INVALID symbols are transmitted alternately and, on the reception side, a normal data reception state and an error reception state are alternately generated and the transmission of local information is performed based on the changes in the states” as recited in independent claim 8. Therefore, Applicants submit independent claim 8 is patentably distinct from Shirai.

The Examiner asserts that Shirai teaches the invention in claim 8 relying on Fig. 2, and col, 2, line 50 to col. 4, line 35. (See, Office Action, page 6). Applicants submit that Shirai’s disclosed system does not anticipate the claimed invention. More specifically, Applicants submit that Shirai does not disclose at least a transmitting side alternately transmits VALID symbols and INVALID symbols, and a receiving side alternately generates the normal data reception state and the error reception state, thereby realizing the transmission of the local information based on the changes in the states, as recited in independent claim 8.

With the structure of the claimed invention, it is possible to communicate the local information between media converters without providing special circuitry, such as modulators. In addition, since IDLE signals used in normal communication, VALID and INVALID symbols corresponding to these signals, etc., can be used as carriers for the local information, a restriction is not necessarily imposed on the frequency band for transmitting the local information. Therefore, it is possible to resolve the problems of band restrictions on the transmission paths and electrical circuits. Moreover, since it is possible to perform transmission if signals sufficiently slower than the carrier frequency are used, the number of pieces of information per unit time to be transmitted can be increased and the determination at the receiving side can also be simplified.

However, as described above, Shirai merely embeds the data for detecting line-disconnection troubles in the overhead channel so as to allow the receiving side to detect a line-disconnection trouble, as discussed above. Thus, Applicants submit the elements recited in claim 8 are patentably distinct from Shirai's disclosed system, which does not disclose transmitting the local information using combinations of the VALID and INVALID symbols.

In addition, as described above, since Shirai merely transmits the presence or absence of a line-disconnection trouble, the number of pieces of information that can be transmitted per unit time is extremely restricted as compared with the claimed invention, recited in claim 8.

In summary, for at least these reasons, Applicants submit that independent claims 1, 2, 5, 6, and 8 are patentably distinct from the cited reference. Moreover, Applicants submit that claims 3-4, and 7, which are dependent on independent claims 2 and 6, respectively, are also patentably distinct from the cited reference for at least similar reasons. Accordingly, Applicants respectfully request withdrawal of this ground of rejections.

CONCLUSION


As such, Applicants submit that the claimed invention recited in independent claims 1, 2, 5, 6, and 8 are clearly patentably distinct from the cited reference for at least these reasons, among others. Furthermore, in view of the fact that each of the independent claims of the instant application are distinguishable from the cited reference for the aforementioned reasons, Applicants submit that the previously pending dependent claims, as well as new dependent claims 10-17 of the instant application are also distinguishable for at least similar reasons. Accordingly, Applicants request withdrawal of this ground of rejections.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 03-1240, Order No. 14998-285. In the event that an extension of time is required the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 03-1240, Order No. 14998-285.

Respectfully Submitted,
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